

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Cancelled)

2. (Currently Amended) An apparatus for pulverizing a feed material,

comprising:

(a) an inclined gravity feed inlet section configured to control the rate of flow and cooling of the feed material into the apparatus;

(b) a plurality of gas nozzles in communication with a source of liquefied inert gas, said gas nozzles connected to the inlet section and directed radially inward thereto such that the material traveling through the inlet section is exposed to the inert gas as it evaporates, causing the feed material to be cooled and facilitating mechanical pulverization of the feed material;

(c) a crusher directly connected to the inlet section, downstream of the gas nozzles, the crusher having a rotating part and a lining part configured such that the rotating part impacts the material during operation of the device and accelerates the material towards the lining part, the operation thereof pulverizing the material into a smaller size; and

(d) an outlet section connected to the crusher configured to control the rate of flow of the material exiting the device.

3. (Currently Amended) The apparatus of claim ~~1~~2, wherein the crusher is comprised of a surface which is harder than the feed material.
4. (Currently Amended) The apparatus of claim ~~1~~2, wherein the crusher is a flywheel turbine.
5. (Original) The apparatus of claim 2, wherein the inlet section is inclined to about 30° from horizontal.
6. (Original) The apparatus of claim 2, wherein the liquefied inert gas is at least one of carbon dioxide and nitrogen.
7. (Cancelled)
8. (Cancelled)
9. (Cancelled)
10. (Cancelled)
11. (Currently Amended) The apparatus of claim ~~10~~2, wherein there are two nozzles directed radially into the inlet section, each nozzle fixed 15° from vertical when viewed in cross-section.

12. (Original) The apparatus of claim 2, wherein the outlet section includes a mesh screen that limits the size of the feed material exiting the crusher.

13. (Currently Amended) A method for pulverizing a feed material coal comprising:

(a) ~~evaporating a liquefied inert gas in the presence of a feed material so that the feed material is cooled and becomes more susceptible to mechanical pulverization; and placing the coal into an inclined inlet and feeding the coal through the inlet solely by gravity;~~

(b) ~~pulverizing the cooled material; introducing a liquefied inert gas radially into the inlet via at least two gas nozzles, directed upwardly and inwardly to the inlet at an angular orientation;~~

(c) evaporating the liquefied inert gas in the presence of the coal so that the coal is cooled and becomes more susceptible to mechanical pulverization;

(d) pulverizing the cooled material, by impacting it with a flywheel turbine;

(e) passing, by means of pressure differential, the pulverized coal to an outlet tube; and,

(f) recycling, by means of a mesh screen on the outlet tube, larger particles for further pulverization.

14. (Cancelled)

15. (Cancelled)

16. (Currently Amended) The method of claim 13, wherein the feed material is pre-crushed, ~~for example, in a ball mill,~~ prior to step (a).

17. (Original) The method of claim 13, wherein the feed material is cooled to at least -100°C prior to the pulverization step.

18. (Original) The method of claim 13, wherein the liquefied inert gas is at least one of carbon dioxide and nitrogen.

19. (Cancelled)